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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/764,145

01/23/2004

Jurgen Morton-Finger

22780

6066

535 7590 12/18/2008

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EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

12/18/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/764,145	Applicant(s) MORTON-FINGER, JURGEN	
	Examiner JEFFREY WOLLSCHLAGER	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 45-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 45-61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 12, 2008 has been entered.

Response to Amendment

Applicant's amendment to the claims filed November 12, 2008 has been entered. Claims 1-44 have been canceled. Claims 45-61 are new and under examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 45-50, 53, and 56-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bandera et al. (US 2002/0100995) in view of Scarlett (US 2,823,421) and in view of either of Bentivoglio (US 6,153,093) or Rosato (Extruding Plastics – A Practical Processing Handbook, 1998) and in view of Hills (US 4,849,113).

Regarding claims 45 and 48, Bandera et al. teach a method of extruding waste/recycled polyethylene terephthalate (PET) without any precrystallization or predrying steps. In the method, Bandera et al. feed the still humid PET to a twin screw extruder such that the flights of the extruder screw are only partially filled and degas/vent the interior of the screw in order to remove moisture from the PET (Abstract; Figure 2; paragraphs [0010, 0019, 0020, 0025-0027, 0029-34, 0040] and claim 1). Bandera et al. teach that the degree of flight filling impacts the efficiency of venting while extruding PET (paragraph [0030]), as such; Bandera et al. establish the degree of flight filling as a result effective variable that would have been readily optimized. The examiner notes that in one interpretation, recycled/waste PET intrinsically contains some degree of contamination/dirt.

The disclosure of Bandera et al. focuses on the method of extruding waste/recycled PET without predrying, as such; Bandera et al. do not expressly teach what PET products can be made via extrusion or the claimed filtering/control method. However, Scarlett et al. (Figure 1 and Figure 2; col. 1, line 18-col. 2, line 41) teach a method of stretching and cooling extruded PET to produce a packaging film. Furthermore, Bentivoglio (Abstract; col. 1, lines 10-16; col. 2, lines 8-67; col. 3, lines 56-64) and Rosato (pages 84-89) each teach extruding resins through a filter, backflushing the contaminants/dirt from the filter in response to differential pressure across the filter which increases the time between complete filter changes. Additionally, Hill discloses as conventional, adjusting extruder speed, as required, to account for the increased clogging of a filter downstream of the extruder (col. 13, line 63 – col. 14, lines 44).

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Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have combined the teaching of Bandera et al. with the teaching Scarlett et al. and to have produced a packaging web/film product, as suggested by, Scarlett for the purpose of producing a suitable and viable product while realizing the advantages of Bandera et al.'s method (i.e. no predrying).

Further, it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Bandera et al. and to have employed a backflush filter, as suggested by either of Bentivoglio or Rosato, for the purpose of increasing production output and increasing the time between filter changes. Additionally, it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have adjusted the extruder speed as the filter became plugged, as disclosed as conventional by Hills, for the purpose of maintaining a constant extruder output/output pressure.

As to claim 46, Bandera et al. teach the material is PET granules from bottles (paragraph [0020]).

As to claim 47, Bandera et al. teach that conveying raw material with a screw conveyor is known in the art as an effective means of transporting material (Figure 1 (11))

As to claim 49, Bandera et al. teach the screws are co-rotating in the same direction (paragraph [0026]).

As to claim 50, Bandera et al. teach the venting is done with a hood under vacuum (paragraph [0027]).

As to claim 53, the melt is pumped to the head of the extruder (paragraph [0033]).

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As to claims 56 and 57, Hills discloses adjusting the extruder speed (col. 14, lines 1-20). Further, it is noted that the feed rate to the extruder would be adjusted/controlled to zero when the screens needed to be ultimately changed after many backflushes (Rosato, pages 84-89).

As to claims 58-60, Scarlett teach two stretching devices (A-E) and (F-J) corresponding to disclosed elements (19) and (20). Additionally, Scarlett heats the film above 80 °C (col. 2, lines 34-70). The examiner notes that the glass transition temperature of PET is about 69 °C. Additionally, Scarlett teaches the heated temperature effects the ability to stretch the film (col. 3, lines 45-55; Table 1) and as such is a result effective variable that would have been readily optimized. After heating, Scarlett further stretches the film (Figure 2) and then heat sets/fixes the film (Figure 2). Finally, the film is cooled and wound. It would have been obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Tanaka et al. and to have stretched, heated, and cooled the film as taught by Scarlett for the purpose of effectively yielding a suitable film.

Claims 47, 51, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bandera et al. (US 2002/0100995) in view of Scarlett (US 2,823,421) and in view of either of Bentivoglio (US 6,153,093) or Rosato (Extruding Plastics – A Practical Processing Handbook, 1998) and in view of Hills (US 4,849,113), as applied to claims 45-50, 53, and 56-60 above, and further in view of Tanaka et al. (US 6,409,949). *Note: This is an alternative rejection to the rejection of claims 47 and 53 above.*

As to claims 47 and 53, the combination teaches the method set forth above. However, in an alternative interpretation, Tanaka et al. teach a method of extruding reproduced/recycled PET flakes in a twin-extruder (col. 4, lines 32-35) and degassing the melt in the extruder (col. 4, lines 42-46; col. 6, lines 15, 27-31). Tanaka et al. disclose spinning the melt coming out of the

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extruder through a die, not limited to pelletizing, to make a desired product (Table I; col. 4, lines 47-55; col. 6, lines 42-47). Tanaka et al. teach that the PET is supplied to the extruder with a metering screw (col. 4, lines 40-42) and teach feeding the melt to the downstream process with a gear pump (col. 4, lines 50-55).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have combined the teaching of Bandera et al. with the teaching of Tanaka et al. and to have supplied the PET to the extruder with a metering screw and to have employed a gear pump, as suggested by Tanaka et al., since Tanaka et al. suggest such equipment is an art recognized equivalent and suitable means for transporting PET.

As to claim 51, the combination teaches the method set forth above. Bandera et al. do not teach at least one chain lengthening substance. However, Tanaka et al. teach feeding a chain-lengthening substance to the interior of the extruder (col. 6, lines 20-22; col. 4, lines 45-51).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Bandera et al. and to have employed a chain lengthening material, as suggested by Tanaka et al. for the purpose, as suggested by Tanaka et al. of improving the quality of the recycled PET.

Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bandera et al. (US 2002/0100995) in view of Scarlett (US 2,823,421) and in view of either of Bentivoglio (US 6,153,093) or Rosato (Extruding Plastics – A Practical Processing Handbook, 1998) and in view of Hills (US 4,849,113), and further in view of Tanaka et al. (US 6,409,949), as applied to claims 47, 51 and 53 above, and further in view of either of VanBuskirk et al. (US 5,281,676) or Pfaendner et al. (US 5,807,932).

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Regarding claim 52, the combination teaches feeding at least one chain-lengthening substance as set forth above, but do not explicitly teach the chain-lengthening substance is a lactam or oxazole derivative. However, VanBuskirk et al., teach processing PET with lactam derivatives as the chain-lengthening substances (col. 3, lines 24-31; col. 4, lines 31-52). And Pfaendner et al. disclose that oxazolines are known chain extenders suitable for increasing the molecular weight of recycled polyesters such as PET (col. 1, line 6-col. 2, line 38, in particular, col. 2, line 16; col. 6, lines 33-39)

Therefore it would have been *prima facie* obvious to one having ordinary skill at the time of the claimed invention to have employed the lactam derivative chain lengthening agent taught by VanBuskirk et al. in the method of Bandera et al. because, as taught by VanBuskirk et al., lactam derivatives are well-suited for use as chain lengthening substances in PET applications and do not result in any undesired toxic byproducts such as phenol comprising compounds (col. 4, lines 46-52).

Additionally, it would have been obvious to one having ordinary skill in the art at the time of the claimed invention to have employed an oxazoline based chain extender in the method of Bandera et al., as suggested by Pfaendner et al., since Pfaendner et al. suggest such materials are art recognized equivalent alternative chain extenders suitable for utilization with PET.

Claims 54 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bandera et al. (US 2002/0100995) in view of Scarlett (US 2,823,421) and in view of either of Bentivoglio (US 6,153,093) or Rosato (Extruding Plastics – A Practical Processing Handbook, 1998) and in view of Hills (US 4,849,113), as applied to claims 45-50, 53, and 56-60 above, and further in view of Strobel et al. (US 6,585,920).

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As to claims 54 and 55, the combination teaches the method as set forth above wherein the cooling is performed with a cooling drum (e.g. Scarlett Figure 1 (W)). However, Strobel discloses that cooling drums and water baths are art recognized equivalent means for cooling extruded films (col. 6, lines 51-57).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed an art recognized equivalent method of cooling, such as a water bath, as suggested by Strobel in the combined method since it has been held that employing art recognized equivalents suitable for the same purpose is *prima facie* obvious.

Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bandera et al. (US 2002/0100995) in view of Scarlett (US 2,823,421) and in view of either of Bentivoglio (US 6,153,093) or Rosato (Extruding Plastics – A Practical Processing Handbook, 1998) and in view of Hills (US 4,849,113), as applied to claims 45-50, 53, and 56-60 above, and further in view of either of DeSmedt et al. (US 4,140,740) or Vogt et al. (US 6,589,463).

As to claim 61, the combination teaches the method set forth above. The combination does not teach after a plurality of stretching, cooling, and heating steps, performing one additional stretching step as claimed. However, each of DeSmedt et al. (Figure 2 (63) (64) (65) (66) and (67)) and Vogt et al. (Figure 1 (29) (30) (31)) individually teach a process of stretching PET films wherein a pulling/stretching step is performed after a heat setting/fixing step immediately prior to being wound in roll form.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the set forth by the combination and to have performed one additional stretching step as suggested by either of DeSmedt et al. or Vogt et al.,

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for the purpose, as suggested by DeSmedt et al., of effectively slitting the extruded film, or for the purpose, as suggested by Vogt et al., of facilitating the winding process.

Response to Arguments

Applicant's arguments filed November 12, 2008 have been fully considered and to the extent they remain applicable in view of the new combination of references set forth above, they are not persuasive. Applicant argues that while Bandera et al. teach "some of the features of the invention, e.g. the partial filling of extruder flights..." (page 11, first paragraph), Bandera et al. also contains teachings that are excluded by the method of the claimed invention. In particular, applicant argues that Bandera et al. teach drying for about 6 hours at 160 °C. This argument is not persuasive. The examiner submits that the argued drying disclosed by Bandera et al. is directed to the "known art" (paragraph [0019]) and that this drying is what the Bandera et al. disclosure intends to eliminate by processing "still humid" material (Abstract; claim 1). The examiner notes that Figure 1 in Bandera et al. is directed to the "known art" whereas Figures 2-7 are directed to the "present invention" of Bandera et al. (paragraph [0025]). The examiner submits that the Bandera et al. reference substantially teaches the exact opposite of that which has been argued. Namely, Bandera et al. purposefully do not predry their material and employ partially filled screw flights in combination with a vented extruder to dry the material in the extruder (Figure 2). Accordingly, the examiner further disagrees with the assertion that the rejection is a piecemeal rejection that picks and chooses limitations from references that are not combinable. Further, the examiner notes that the Bandera et al. reference is now the primary reference in view of the amendment to the claims.

Applicant argues that neither Bentivoglio nor Rosato disclose monitoring pressure upstream and downstream of the filter and backflushing in accord with the pressure differential.

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This argument is not persuasive. The examiner notes that Bentivoglio teaches the frequency of backflush is “under the automatic control of pressure-differential sensors which detect when the filters are becoming clogged” (col. 3, lines 62-64). Additionally, Rosato disclose that pressure controls should be employed on either side of the filter/breaker plate (page 85), that in dirty applications the pressure drop is monitored continuously (page 86), and that in demanding service like extruding recycled materials backflush screen changers/filters are employed (page 88). The examiner submits that the teachings of pages 85 and 86 of Rosato regarding screen changers/breaker plates are clearly applicable and understood to be applied in even more challenging recycling applications such as where backflush filters are discussed on page 88 (see for example the classification of screen changers on page 86, 3rd paragraph, – which also includes backflush filters).

Applicant argues that Hill does not teach a plurality of claimed limitations. This argument is not persuasive. The examiner notes that Hill is applied for the conventional teaching of adjusting the rate in response to a plugging filter.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY WOLLSCHLAGER whose telephone number is (571)272-8937. The examiner can normally be reached on Monday - Thursday 6:45 - 4:15, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Wollschlager/
Examiner, Art Unit 1791

December 18, 2008